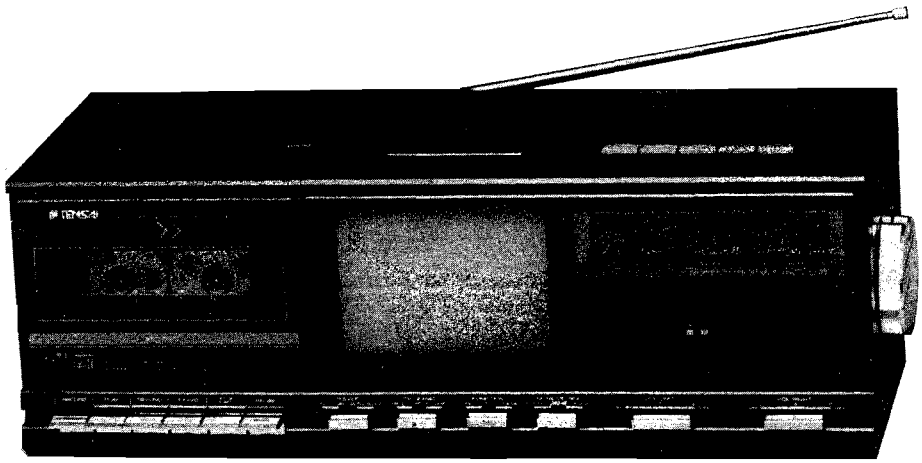
135

MODEL:
RTC-8320

STEREO RADIO/TV/CASSETTE
DIGITAL CLOCK COMBINATION

TENSAI
INTERNATIONAL



Service Manual

135

SPECIFICATIONS

TV SECTION

C.R.T.	4.5" B/W, 90°
Channel	VHF (L) : 2-4 ch
	VHF (H) : 5-12 ch
	UHF : 21-69 ch
IF Frequency	
Video	38.9 MHz
Sound	33.4 MHz
Sensitivity	VHF: 15dB
	UHF: 20dB
High Voltage	7.2Kv MAX
Matching Unit	75 ohm
(Connectied by External Terminal)	

FM SECTION

Frequency Range	87.5-108 MHz
30dB S/N Sensitivity	22dB
Image Rejection	30dB
S/N Ratio	62dB
Separation	30dB

LW SECTION

Frequency Range	145-315KHz
20dB S/N Sensitivity	62dB
Image Rejection	28dB
MAX Sensitivity	54dB

MW SECTION

Frequency Range	525-1605 KHz
20dB S/N Sensitivity	56dB
Image Rejection	40dB
S/N Ratio	40dB

CASSETTE SECTION

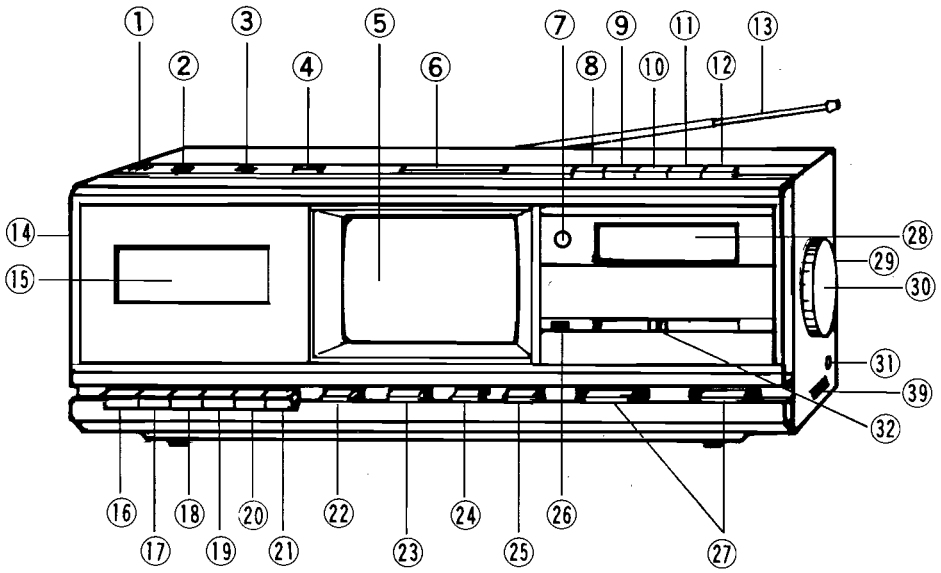
Tape Speed	4.75cm/sec.
Wow & Flutter	0.2%
S/N Ratio	45dB
CH. Separation	38dB
Rec. System	AC Bias
Erasing System	AC Erase
F.F/REW Time	110sec, (C-60)

GENERAL

Power Source	
AC	220V 50Hz
MAX. Output Power	1W + 1W
Speaker	3", 16ohm Dynamic
Dimension	372(W)x135(H)x155(D)mm
Weight	4.5Kg

* Specifications subject to change without notice for improvement.

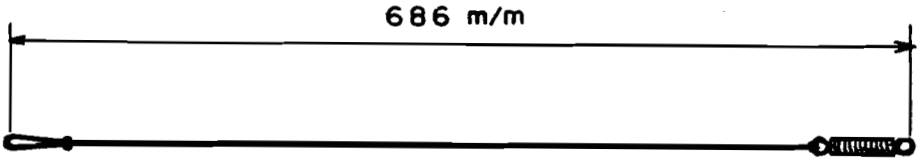
CONTROL LOCATION

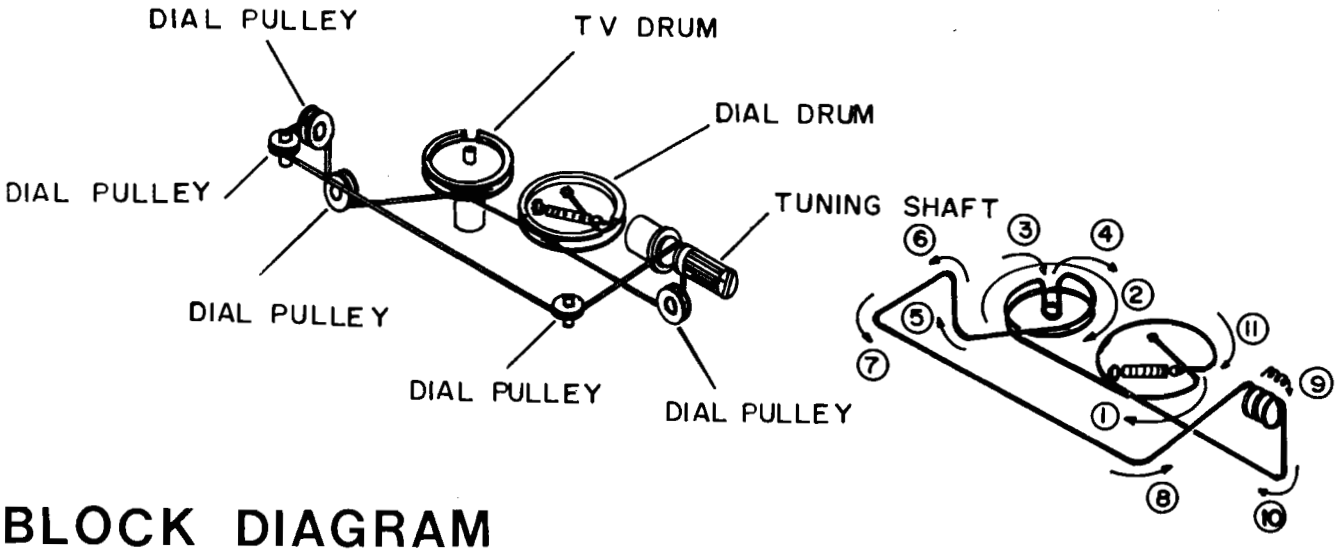


1. Condenser Mic.
2. Recording Indicator
3. Message Indicator
4. Message Button
5. C.R.T
6. Snooze
7. Auto Dimmer
8. Sleep Button
9. Time Button
10. Alarm Button
11. Hour Button
12. Minute Button
13. Rod Ant.
14. Alarm OFF/RESET
15. Cassette Door
16. Recording Button
17. Play Button
18. Rewind Button
19. Fast Forward Button
20. Stop/Eject Button
21. Pause Button
22. Power Switch
23. TV Band Selector
24. Function Selector Switch
25. FM Mode/Beat Switch
26. FM Stereo Indicator
27. Volume Control
28. Timer/Clock
29. Tone Control
30. Tuning Knob
31. Headphone Jack
32. Dial Indicator
33. AC Cord
34. V—Hold
35. Cont.
36. Brt.
37. Back-up Battery Cover
38. Ext. Ant. Jack
39. Radio Band Selector Switch (FM/MW/LW)

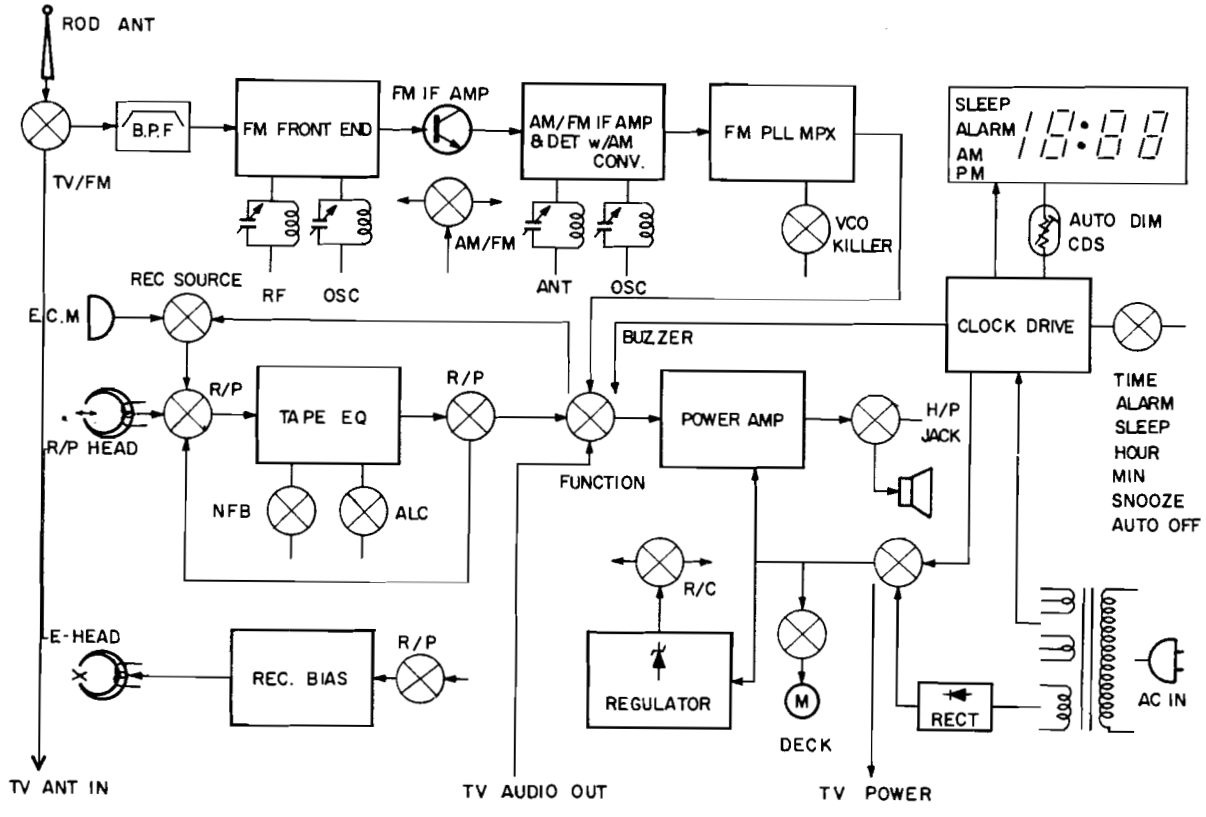
DIAL CORD STRINGING

1. Dial String Length 686mm.
2. Arrows 1 — 11 show the Correct order and Direction to run Dial String.

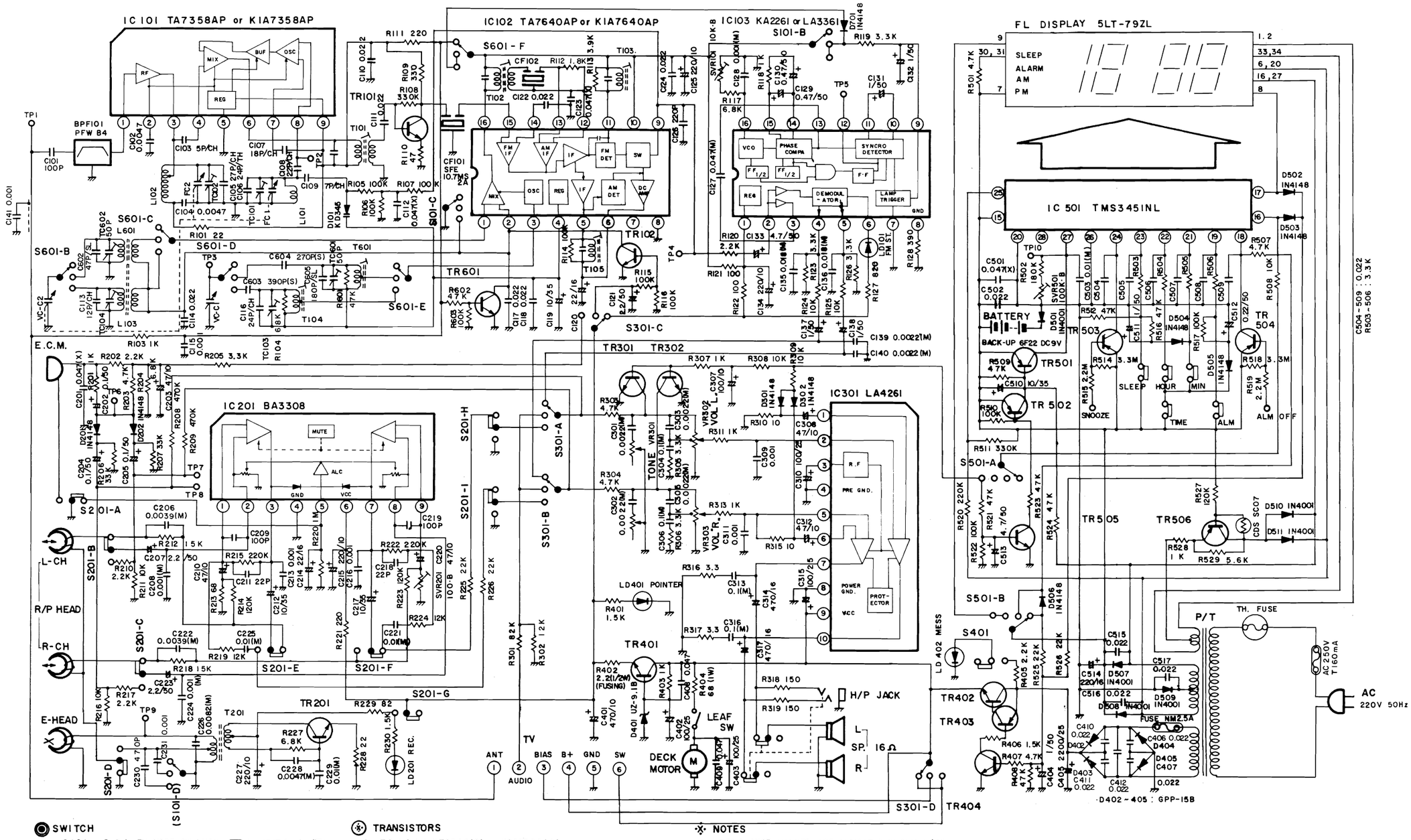




BLOCK DIAGRAM



SCHEMATIC DIAGRAM (AUDIO)



SWITCH

1. S101 - B,D : FM MODE SW. (MONO/ST.), BEAT (1/2/3)
2. S201 - A~I : TAPE R/P SW. (PLAY/ REC.)
3. S301 - A~D : FUNCTION SW. (TAPE / TV/ RADIO)
4. S401 : MESSAGE. (OFF/ ON)
5. S501 - A~B : POWER. (ON/ OFF/ AUTO / BUZZ)
6. S601 - A~F : RADIO BAND SW. (MW / LW/ FM)

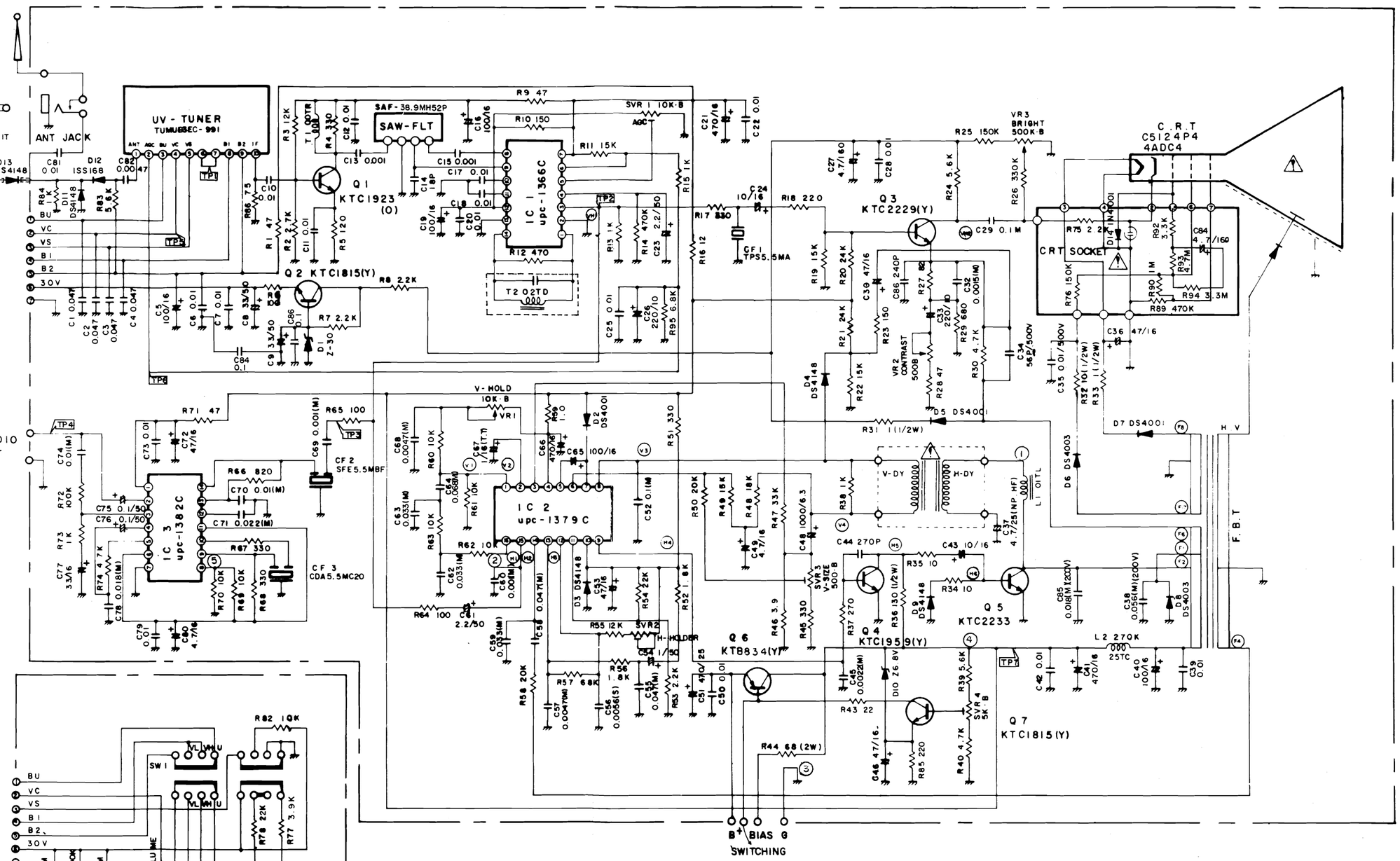
TRANSISTORS

1. TR 101 : KTC3800(O) or KSC838C(O)
2. TR 201 : KTC2120(Y) or KSC1008C(Y)
3. TR 102, 301, 302, 404, 505, 601 : KTC1815(GR) or KSC945C(G)
4. TR 401 : KTC2236A(Y) or KSC2328A(Y)
5. TR 402 : KSC1096(Y)
6. TR 403, 501, 502, 506 : KTA1015(GR) or KSA733C(G)
7. TR 503, 504 : KTA970(BL) or 2SA1192(E)

NOTES

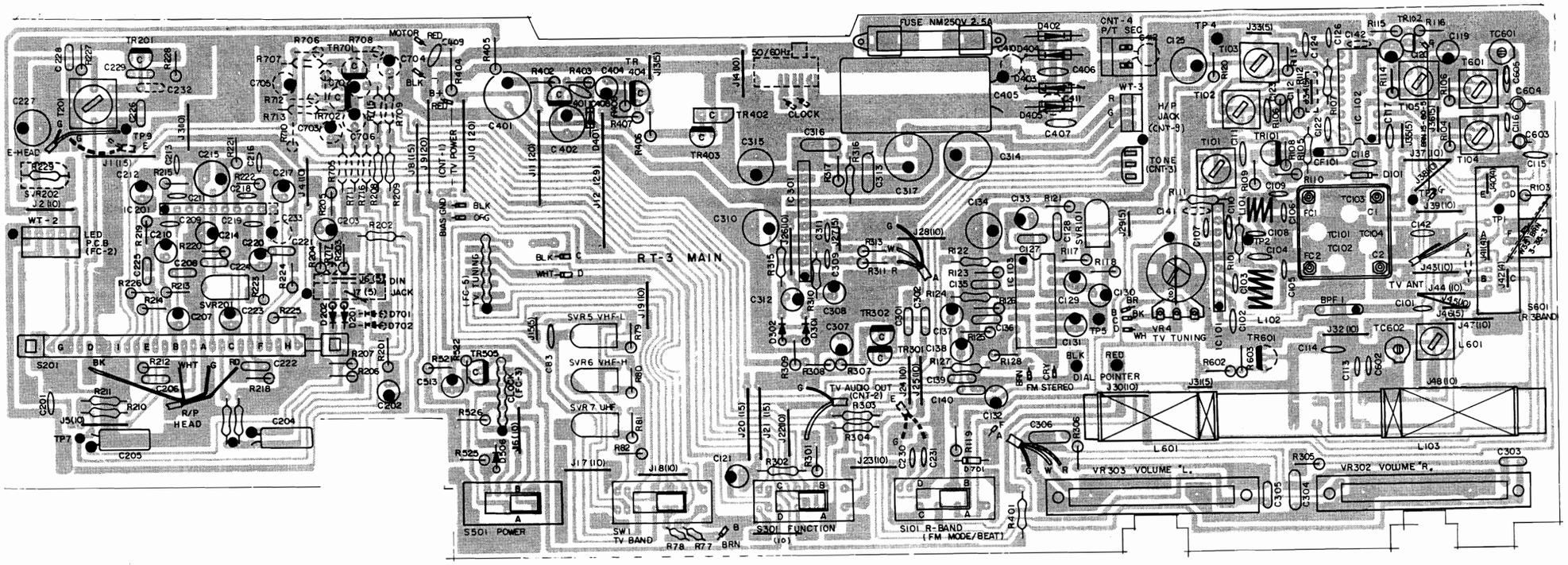
1. RESISTANCE VALUES ARE INDICATED IN OHM 1/8W UNLESS OTHERWISE SPECIFIED. (K = 10^3, M = 10^6)
2. CAPACITANCE VALUES ARE SHOWN IN uF, DC 50 (V) UNLESS NOTED. (u = 10^{-6}, P = 10^{-12}, -(M) = MYLAR, -(S) = STYROL, (X) = SEMICONDUCTIVE)
3. ELECTROLYTIC CAPACITORS ARE INDICATES AS FOLLOWS: CAPACITANCE (uF) / WORKING VOLTAGE (V)
4. THIS SCHEMATIC DIAGRAM'S COMPONENT VALUES ARE SUBJECT TO CHANGE WITHOUT NOTICE FOR IMPROVMENT.

SCHEMATIC DIAGRAM (TV)

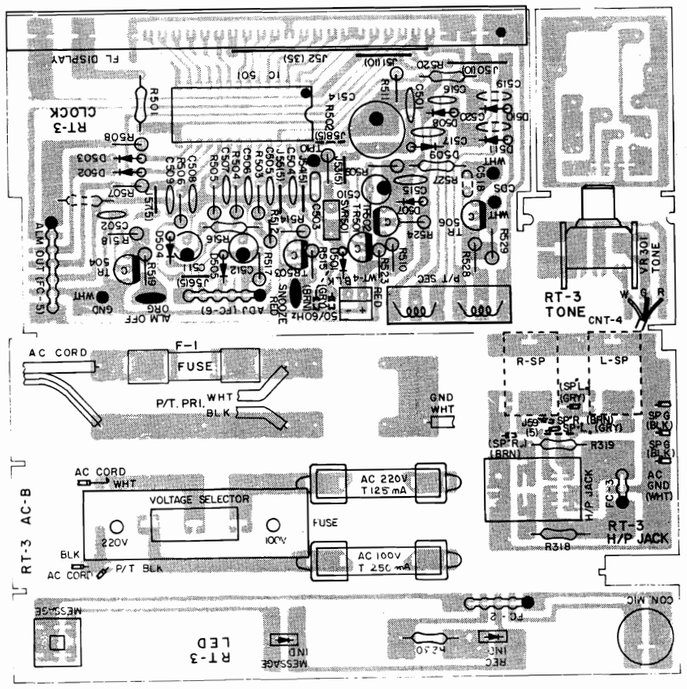


VH1	VH2	V1	V2	V3	V4	H1	H2	H3	H4	H5	H6	F1	F2	F4	F6	F7	F8
1.5V P.P	40V P.P	2.2V P.P	1.8V P.P	23V P.P	3.2V P.P	1.2V P.P	1.1V P.P	2.2V P.P	1V P.P	3.3V P.P	5.6V P.P	96V P.P	92V P.P	118V P.P	55V P.P	400V P.P	11V P.P

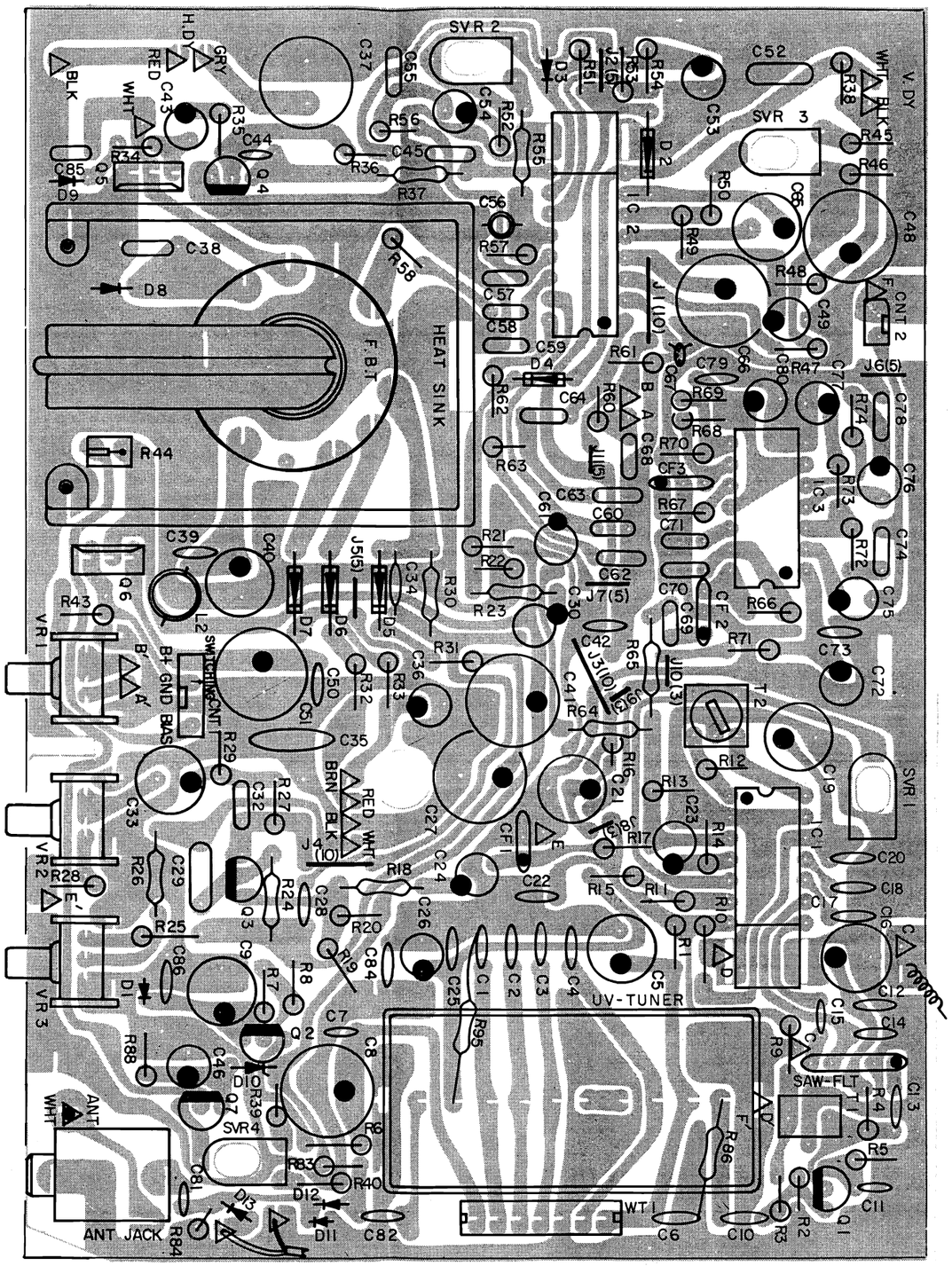
MAIN P. C. BOARD TOP VIEW (AUDIO)



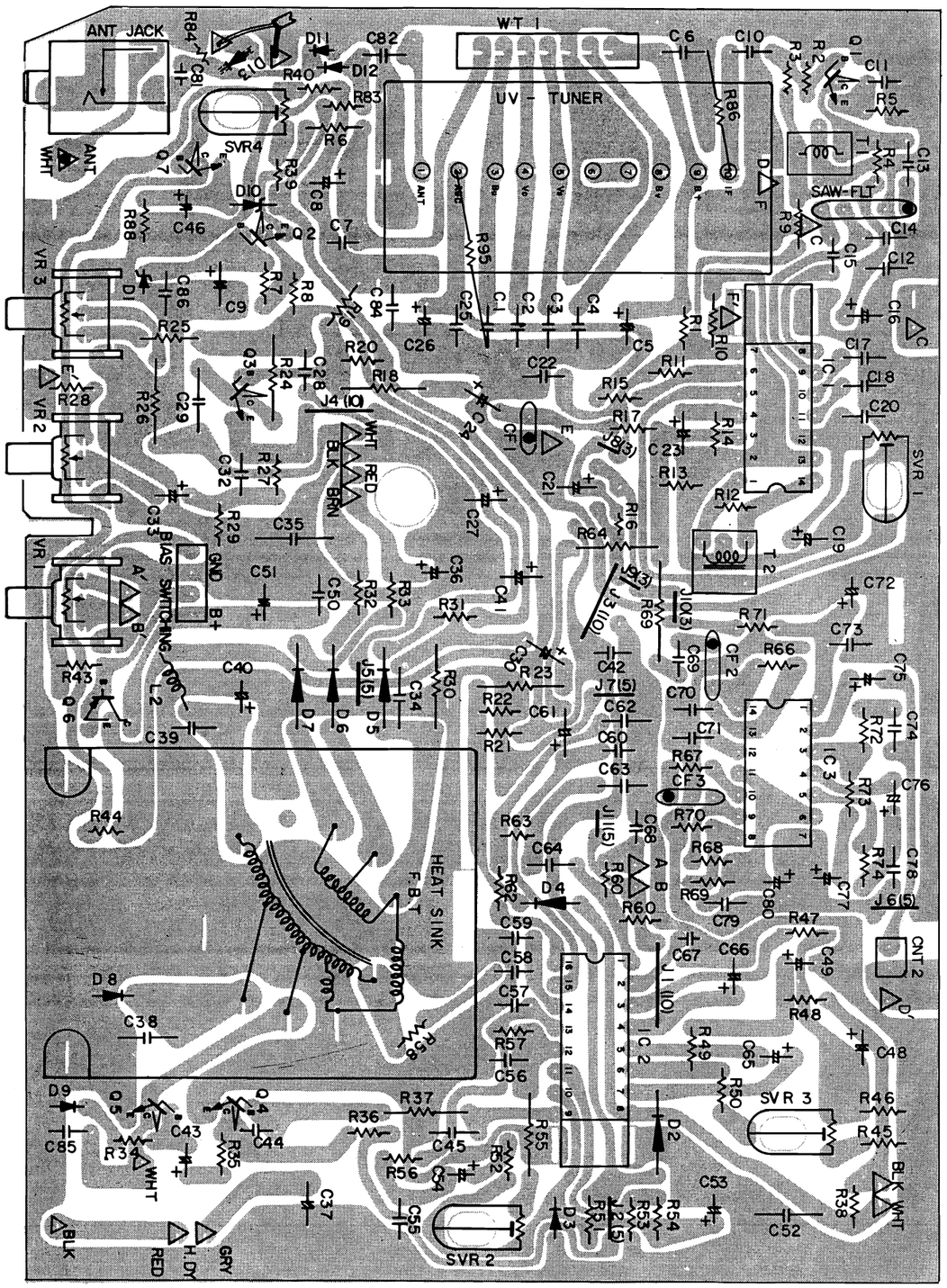
SUB. P. C. BOARD TOP VIEW



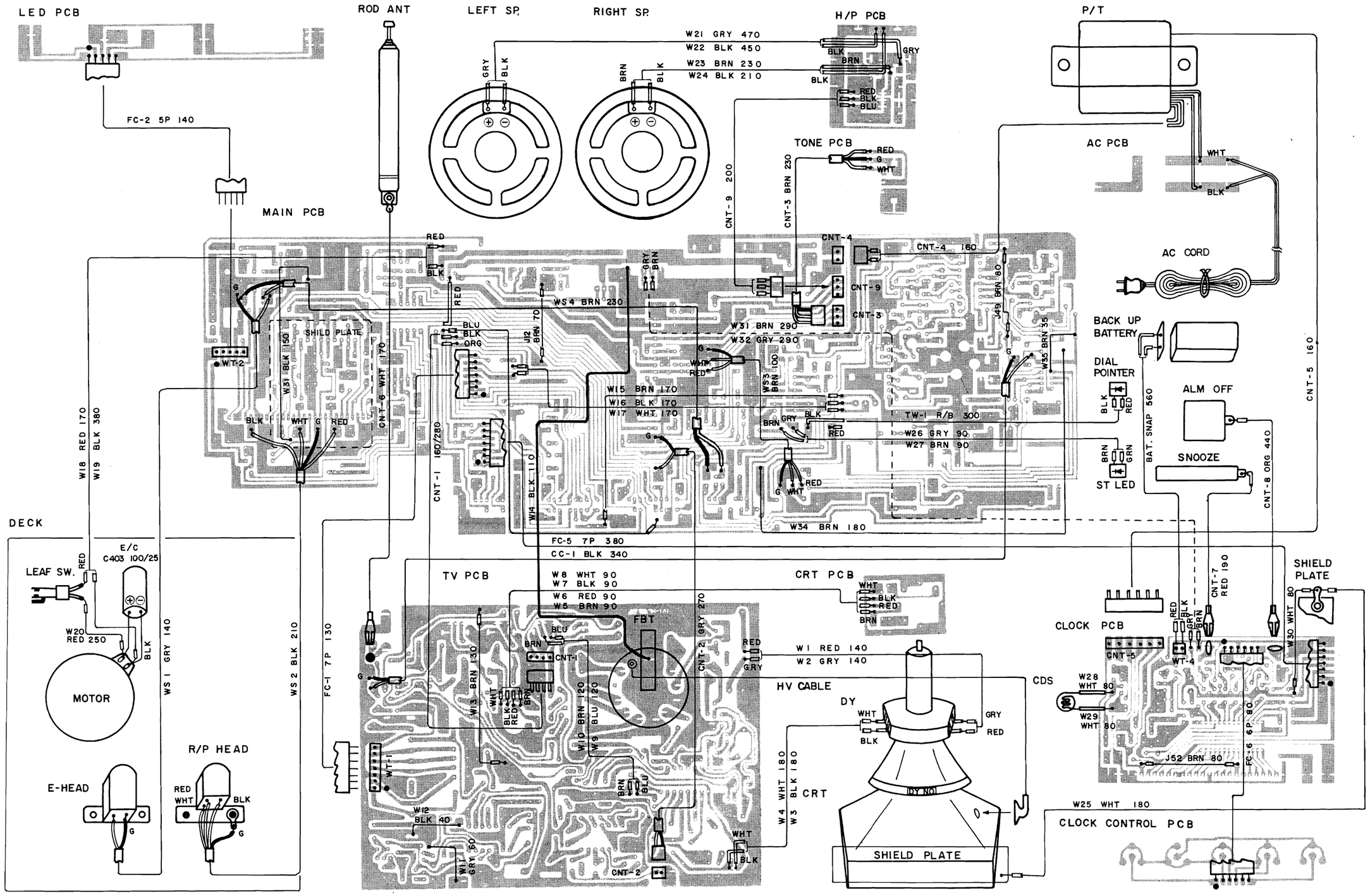
TV P. C. BOARD TOP VIEW



TV P. C. BOARD BOTTOM VIEW



WIRING DIAGRAM



IC AND TRANSISTORS VOLTAGE CHART

NO SIGNAL

IC NO. \ PIN NO. / FUNCTION		1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	16
IC101	FM	0.7	1.4	3.5	1.4	0	3.5	2.7	3.4	3.5							
IC102	AM	1.5	1.5	2.3	2.3	0.9	1.1	0	0	1.3	5.9	5.9	1.4	1.4	1.4	1.4	5.9
	FM	0	0	2.3	2.3	1	1	0	0	1	4.6	4.7	1.4	1.4	1.4	1.4	4.7
IC103	AM	6.8	2.3	1.6	1.6	1.6	7.1	0	0.4	3.1	1.4	1.4	2.1	1.4	1.4	1.4	0
	FM	6.2	2.2	1.5	1.6	1.55	7.1	0	0.4	0.3	1.4	1.4	1	1.4	1.4	1.4	0.8
IC201	PB	1.8	0	1.8	0	0	8	1.8	0	1.8							
	REC	1.8	0	1.8	0	0.9	7.8	1.8	0	1.8							
IC301		0.5	0	19.5	0	0	0.5	9.8	0	19.8	9.8						

IC 501

PIN NO.	15	16	17	18	19	20	21	22	23	24	25	26	27	28
FUNCTION		ALARM	SLEEP	ALM	ALM SET		MIN SET	HOU SET	SLP SET	SNOOZE			BUZZ	
VOLTAGE	13.3	13	13.1	1.1	1.9	0	10	10	13	10	18.8	0	4.6	10

TR

TR. NO.	101	102	201	301	302	401	402	403	404	501	502	503	504	505	506		601
FUNCTION	FM	TV	REC	BUZZ	BUZZ						BUZZ	SNOOZE	ALMOFF	BUZZ	BRT,	DRK.	FM
B	0.7	0.6	1.5	0.6	0.6	9.3	18.5	18.3	0.6	12.7	12.7	12.9	12.9	0.6	−5.2	−9	0.6
C	3.2	0	5.6	0	0	18.8	19.3	19.3		13.4	13.4	13.4	12.4	0	−5.4	−5.4	0
E	0	0	0.8	0	0	8.8	19.3	19.3	0	13.4	13.4	13.4	13.4	0	−4.5	−2.6	0

ADJUSTMENT POINTS

TV SECTION VOLTAGE CHARTS

1. IC

IC NO. \ PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC1	7.6	0	2.6	2.17	5.40	2.1	9.58	4.75	4.77	4.8	4.8	6.26	0	7.6		
IC2	4.65	6.44	3.43	10.5	1.34	1.88	10.1	4.88	0.47	6.85	0.7	3.51	3.44	2.33	4.22	1.08
IC3	9.75	4.65	2.15	2.96	4.17	6.55	0	3.28	6.55	2.35	6.55	3.70	3.65	3.64		

2. TUNER

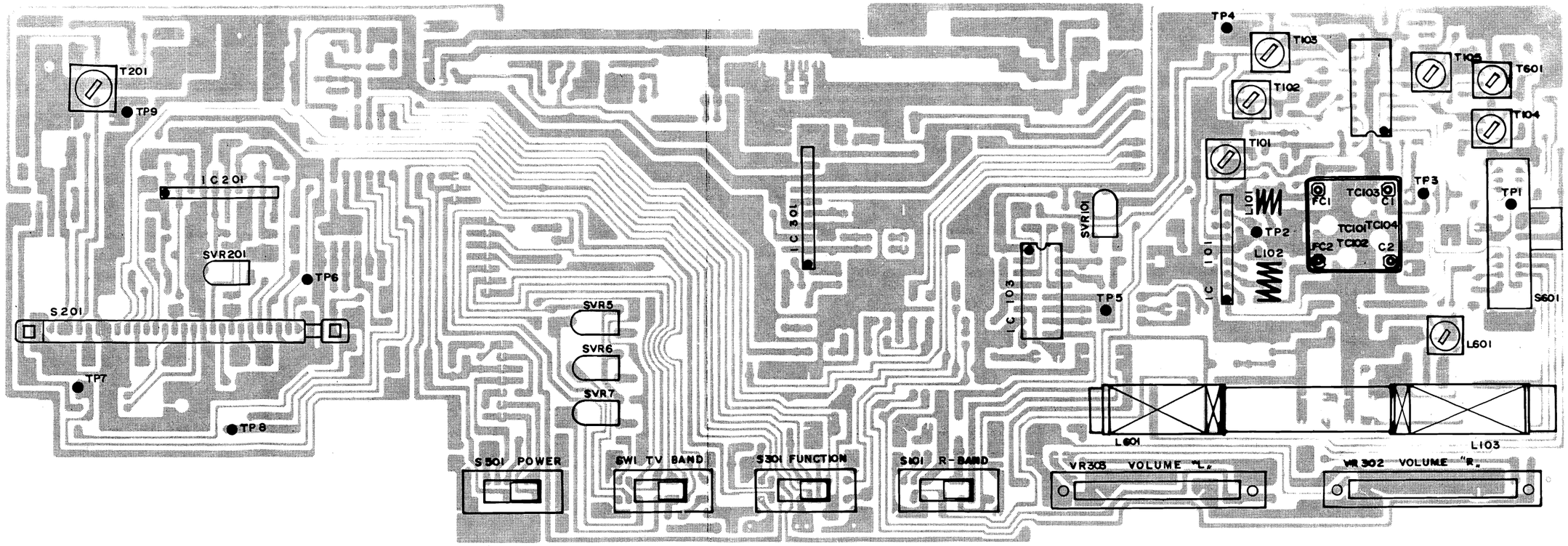
PIN NO.	1	2	3	4	5	6	7	8	9	10	REMARK
VHF. LOW	0	1.77	0.11	X	30.2	0	0	8.7	8.7	0	PIN 4 is Change Voltage by Position of VR the Tuning Volume
VHF. HIGH	0	1.77	0.10	X	0	0	0	8.4	8.40	0	
UHF	0	1.65	8.43	X	0	7.25	7.25	0.1	8.42	0	

3. TRANSISTOR

TR. NO. \ PIN NO.	E	C	B
Q1	1.77	8.7	2.53
Q2	30.6	41.6	31.2
Q3	3.5	35.4	3.76
Q4	0	2.91	0.31
Q5	10.21	0	0
Q6	15	10.5	14.4
Q7	3.79	14.32	4.4

4. CRT SOCKET

PIN NO.	1	2	3	4	5	6	7
VOLTAGE	0.43	16.17	5.81	0	0.43	234	75V



TUNER ADJUSTMENTS

MW ALIGNMENT

Step	Alignment	Connection	Frequency of signal Generator	Tuning Dial setting	Adjustment	Remarks
1	IF Calibration	Fig.–3	455KHz	Low End	T102	Maximum output
2	Tuning Range Calibration	Fig.–5	515KHz	Low End	AM OSC,T104	Maximum output
3			1650KHz	High End	TC103	
4	Adjustment of Tracking	Fig.–5	600KHz	600KHz	Bar Ant. L103	Maximum Output
5			1400KHz	1400KHz	TC104	
6		Repeat the above adjustment				

LW ALIGNMENT

Step	Alignment	Connection	Frequency of signal Generator	Tuning Dial setting	Adjustment	Remarks
1	IF Calibration	Fig.–3	455KHz	Low End	T102	Maximum output
2	Tuning Range Calibration	Fig.–5	145KHz	Low End	LW OSC,T601	Maximum output
3			315KHz	High End	TC601	
4	Adjustment of Tracking	Fig.–5	180KHz	180KHz	Bar Ant. L601	Maximum Output
5			280KHz	280KHz	TC602	
6		Repeat the above adjustments.				

FM ALIGNMENT

Step	Alignment	Connection	Frequency of signal Generator	Tuning Dial setting	Adjustment	Remarks
1	IF Calibration	Fig.–4	10.7 MHz	Low End	T101, 105	Max gain and Symmetrical "S" Curve
2	Tuning Range Calibration	Fig.–6	87.37MHz	Low End	L101	Maximum output
3			108.25MHz	High End	TC101	
4	Adjustment of Tracking	Fig.–6	90 MHz	90 MHz	L102	Maximum Output
5			106 MHz	106 MHz	TC102	
6		Repeat the above adjustment				

FM STEREO ADJUSTMENT

1) Connect a frequency counter to test points (TP5) on the Main P.C. Board.
2) Set positions:
   Function Switch: Radio position. Band Switch: FM position.
   Mode Switch: STEREO position.
3) Adjust Potentiometer(SVR101) on the Main PCB for a frequency counter reading of 19 KHz.

REMARKS:

1) When aligning FM IF, the symmetrical curve may not be obtained by setting the marker of the Sweep Generator (10.7 MHz). This is due to the ceramic filter used in the unit. Regardless of the marker, align the curve as symmetrically as possible with peak output.
2) When aligning the Tuning Range and adjusting the Tracking, proceed with alignment in a sequence of FM → MW/LW.
3) Use a screwdriver with a plastic grip for all alignments.

EQUIPMENT CONNECTION

Fig. 3
MW/LW IF

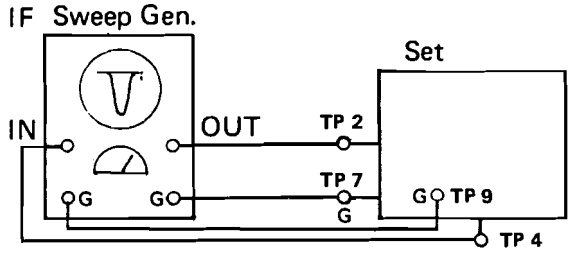


Fig. 4
FM IF

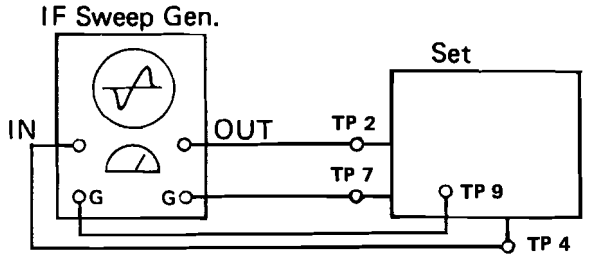


Fig. 5
MW or LW BAND TRACKING

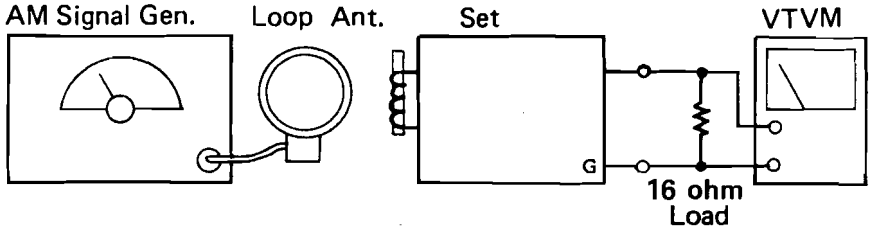
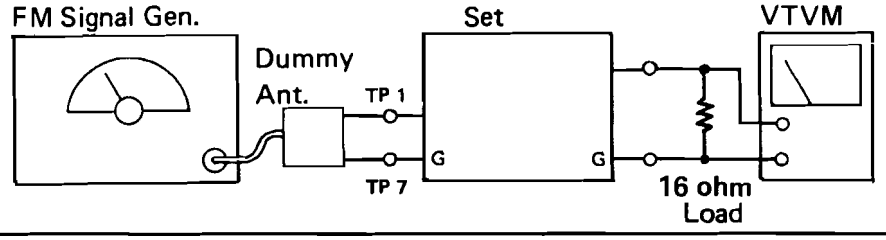


Fig. 6
FM BAND TRACKING



TAPE SPEED ADJUSTMENT

*** TAPE DECK**

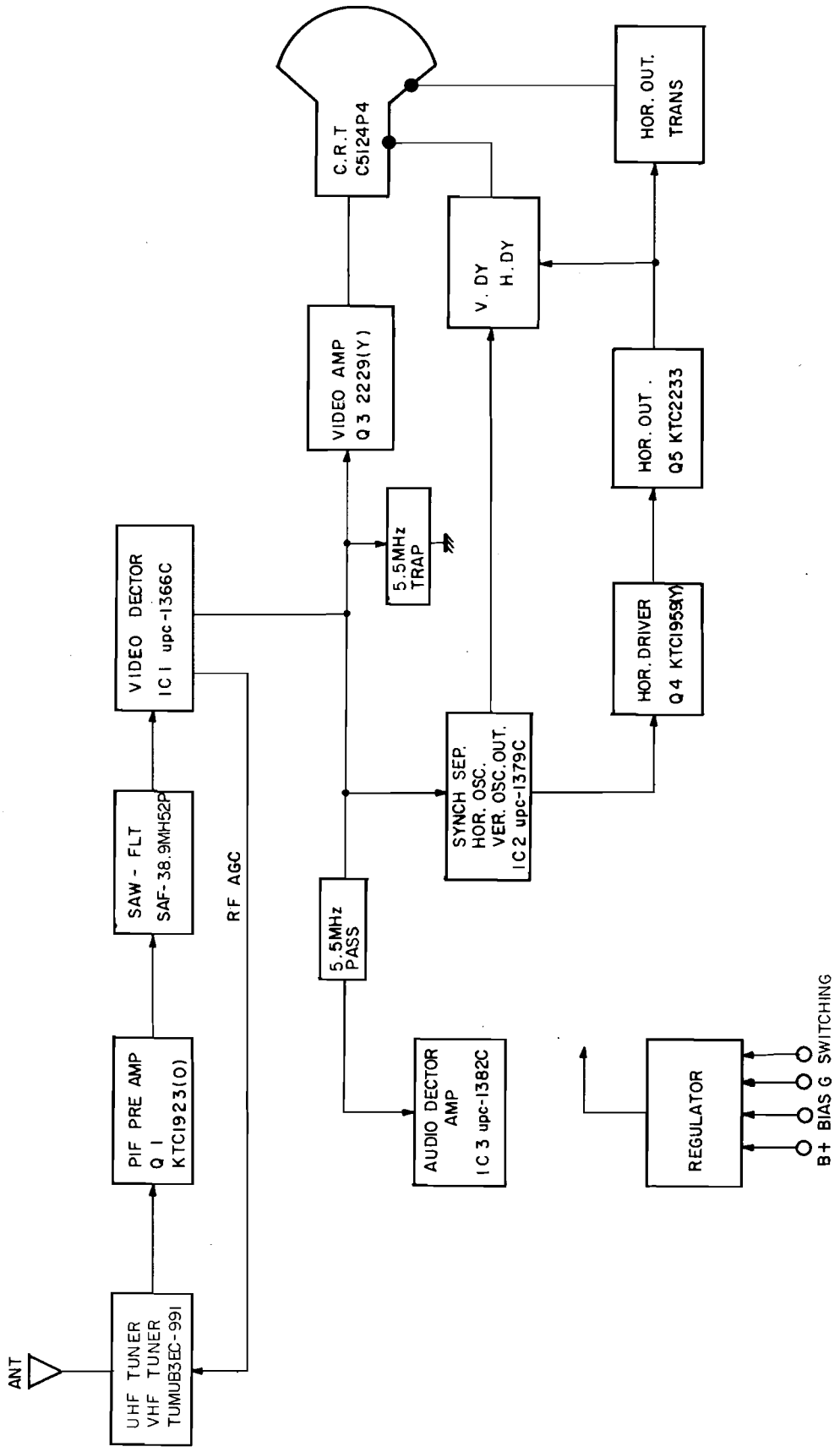
1. Connect a Frequency Counter to the Headphone Jack in Parallel with a 16ohm Non-reactive Dummy Load.
2. Adjust Control on the Motor to Display 3020Hz (2940-3090Hz) on the Counter while Playing back an MTT-111 Test Tape (3000Hz).

CHANNEL BALANCE ADJUSTMENT

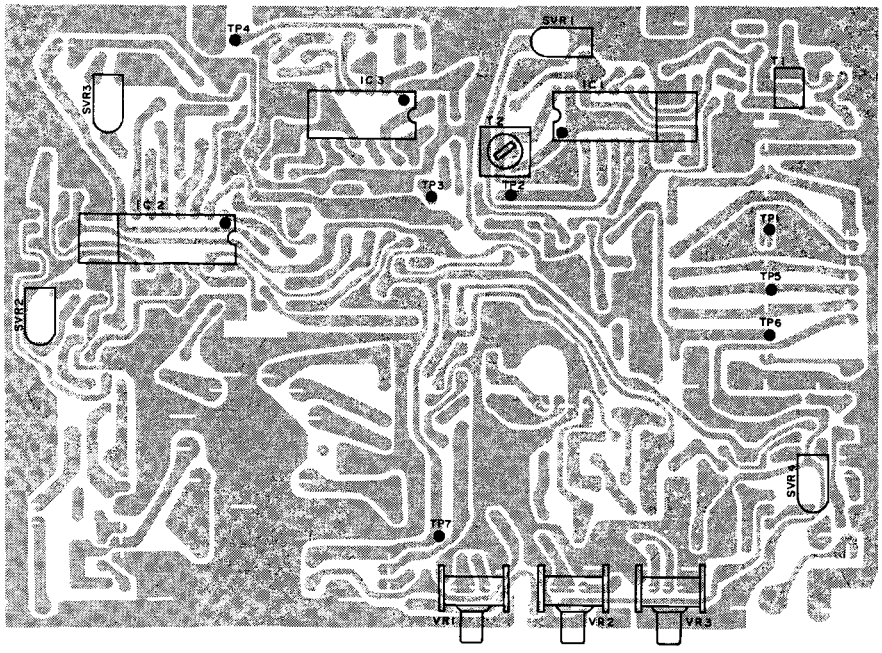
*** TAPE DECK**

1. Connect a VTVM and a Oscilloscope to the Headphone Jack. The Dummy Load have Should be 32ohm.
2. The Function Switch is Tape Position Setting.
3. Insert a 1KHz Test Tape (MTT-118) into the Tape Deck Playing a test tape and Adjust a Potentiometer (SVR 201) on the Main P.C. Board until both Channels at the same Level.

TV BLOCK DIAGRAM



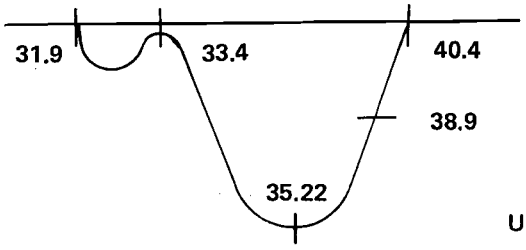
ADJUSTMENT POINTS



TV ADJUSTMENT

1) PIF CURVE ADJUSTMENT

* Frequency : 31.9MHz, 33.4MHz, 35.22MHz, 38.9MHz, 40.4MHz
* Method of Measurement and Curve.



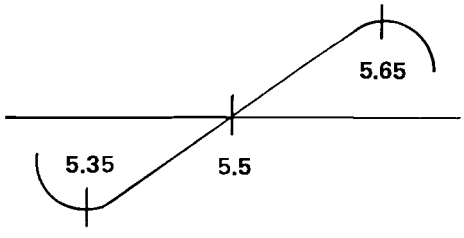
Unit : MHz

As above PIF Curve

1) Adjustment Semi VR (VR1) for RF AGC Maximum.
2) Adjustment DET Coil (T2) becomes PIF Curve.

2) SIF CURVE ADJUSTMENT

* Frequency setting : 5.35MHz, 5.5MHz, 5.65MHz.



Unit : MHz

As above SIF Curve

1) Connect a sweemar scope to (TP 3) and (TP 4).
2) Display "S" type Curve to sweemar scope.

3) PICTURE CENTER ADJUSTMENT

* Method of Measurement

1) Becomes Minimum Vertical size by adjust SVR 3.
2) Adjustment center magnet of D.Y.

4) COVER RANGE OF TUNING VOLTAGE

At UHF Band : Adjustment SVR7 becomes low voltage 0.5V and high voltage 27.9V.
At VHF (L) Band : Adjustment SVR5 becomes low voltage 1V and high voltage 23.7V.
At VHF (H) Band : Adjustment SVR6 becomes low voltage 3V and high voltage 24.7V.
Same as above procedure

1) When low voltage, becomes minimum position by adjustment tuning VR (VR4).
2) When high voltage, adjustment tuning VR (VR 4) becomes maximum position.
3) Repeat the above adjustment.

5) V-HOLD AND H-HOLD ADJUSTMENT

Methods of Measurement

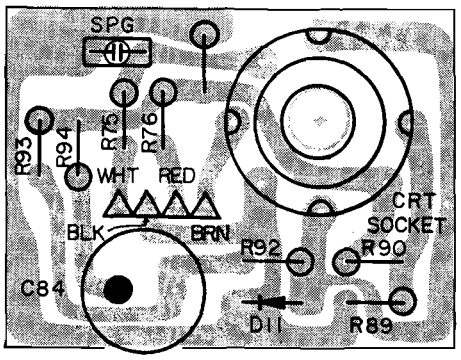
1) 4 CH setting to test pattern signal.
2) Adjust VR1 becomes input to vertical Synchronization signal.
3) Adjustment SVR 2 becomes input to horizontal synchronization signal.

6) RF AGC ADJUSTMENT

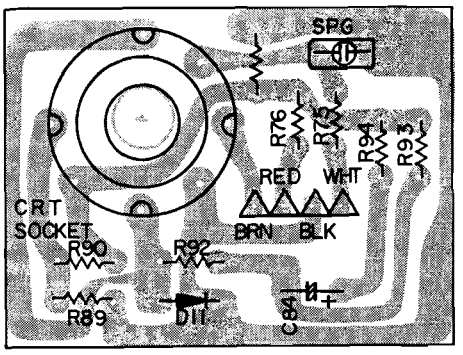
Connect DC voltmeter to AGC terminal of tuner and adjustment SVR 1 becomes 2.7V.

CRT SOCKET PCB

TOP VIEW

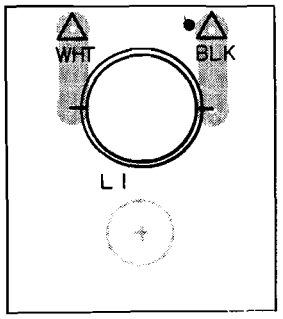


BOTTOM VIEW

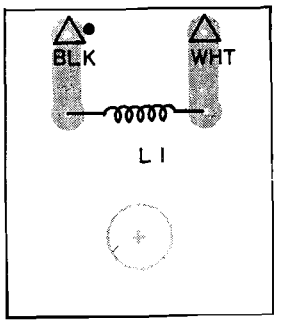


LINEARITY COIL PCB

TOP VIEW



BOTTOM VIEW



ELECTRICAL PARTS LIST

(AUDIO)

SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY
IC101		TA7358AP or KIA7358AP FM FRONT END IC	1
IC102		TA7640AP or KIA7640AP AM/FM IF IC	1
IC103		KA2261 or LA3361 FM PLL MPX IC	1
IC201		BA3308 TAPE R/P EQ IC	1
IC301		LA4261 POWER AMP IC	1
IC501		TMS3451NL CLOCK IC	1
TR101		KSC838C TRANSISTOR	1
TR102,301, 302,404, 505,601		KSC945C-G/L TRANSISTOR	6
TR201		KSC1008C-Y TRANSISTOR	1
TR401		KSC2328A-Y TRANSISTOR	1
TR402		KSC1096-Y TRANSISTOR	1
TR403,501, 502,506		KSA733C-G TRANSISTOR	4
TR503,504		2SA1198-E TRANSISTOR	2
D101		KD345 VVC DIODE	1
D201,202, 301,302, 502-506,701		1N4148 SWITCHING DIODE	10
D401		UZ-9.1B ZENER DIODE	1
D402-405		GPP-15B RECTIFIER DIODE	4
D401,507-511		1N4001 RECTIFIER DIODE	6
FL DISPLAY		5LT-79ZL (LEAD CUT) FL DISPLAY	1
CDS PHOTO CELL		SC-07-1.5S CDS PHOTO CELL	1
LD101		SLB25MG3 GRN2x5 LED	1
LD201		SLB25VR3 RED2x5 LED	1
LD401		SLB15VR3 RED 1x5 LED	1
LD402		SLB25DU3 ORG 2x5 LED	1
S101,301		SS43D01G9 FUNCTION MODE SWITCH	2
S201		92032N R/P SWITCH	1
S401		ESB-64501 MES SWITCH	1
S501		SS24D01G9 POWER SWITCH	1
S601		SK63D01G9 BAND SWITCH	1
VR301		K122L00 50KAx2 TONE V/R	1
VR302,303		S3018P6 50KB VOLUME V/R	2
SVR101		TT-24R 10KB SVR	1
SVR201		TT-24R 100B SVR	1
SVR501		TT-31R 100KB SVR	1
PVC		PVC-22KT-L POLY VARICON	1
TRIMMER CAPACITOR		CV05A500 TRIMMER CAPACITOR	2
JACK		HSJ0924-01-140 HEADPHONE JACK	1
CON. MIC		KUC1723-01-6290A CONDENSER MIC	1
BPW101		PFW-B4 BPF FILTER	1
CF101		SFE10.7MS2A CERAMIC FILTER	1
CF102		SFU455B AM CERAMIC FILTER	1
L101		26FO FM OSC COIL	1
L102		28FR FM RF COIL	1
L103/601		63AT AM BAR ANT. ASS'Y COIL	1
T201		07RO REC BIAS COIL	1
T104		31MO MW OSC COIL	1
T601		32LO LW OSC COIL	1
T102		18AA AM "A" IFT	1
T101		07FA FM "A" IFT	1
T103		06FD FM "D" IFT	1
T105		08AC AM "C" IFT	1
P/T		57-38P-VF-1 POWER TRANSFORMER	1
DECK		TN-21SC-504 DECK MECHANISM	1
SPEAKER		C080A20-588G00 SPEAKER	2
ROD ANT.		5B189B ROD ANTENNA	1

SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY
C202,204, 205		0.1μF 50V, ELECTROLYTIC CAPACITOR	3
C512		0.22μF 50V, ELECTROLYTIC CAPACITOR	1
C129,130		0.47μF 50V, ELECTROLYTIC CAPACITOR	2
C131,132, 137,138,511		1μF 50V, ELECTROLYTIC CAPACITOR	5
C207,223,121		2.2μF 50V, ELECTROLYTIC CAPACITOR	3
C133,404,513		4.7μF 50V, ELECTROLYTIC CAPACITOR	3
C119,212, 217,510		10μF 35V, ELECTROLYTIC CAPACITOR	4
C120,214		22μF 16V, ELECTROLYTIC CAPACITOR	2
C203,210, 220,308,312		47μF 10V, ELECTROLYTIC CAPACITOR	5
C310,315, 402,403		100μF 25V, ELECTROLYTIC CAPACITOR	4
C125,134, 215,227		220μF 10V, ELECTROLYTIC CAPACITOR	4
C514		220μF 16V, ELECTROLYTIC CAPACITOR	1
C401		470μF 10V, ELECTROLYTIC CAPACITOR	1
C314,317		470μF 16V, ELECTROLYTIC CAPACITOR	2
C405		2200μF 25V, ELECTROLYTIC CAPACTOR	1
C307		100μF 10V, ELECTROLYTIC CAPACITOR	1
C604		270PF 50V, STYROL CAPACITOR	1
C603		390PF 50V, STYROL CAPACITOR	1
C128,208, 224		0.001μF 50V, MYLAR CAPACITOR	3
C139,140, 303,305		0.0022μF 50V, MYLAR CAPACITOR	4
C206,222		0.0039μF 50V, MYLAR CAPACITOR	2
C228		0.0047μF 50V, MYLAR CAPACITOR	1
C226		0.0082μF 50V, MYLAR CAPACITOR	1
C221,225, 229,503		0.01μF 50V, MYLAR CAPACITOR	4
C135,136		0.018μF 50V, MYLAR CAPACITOR	2
C301,302		0.022μF 50V, MYLAR CAPACITOR	2
C127		0.047μF 50V, MYLAR CAPACITOR	1
C304,306, 313,316		0.1μF 50V, MYLAR CAPACITOR	4
C103		5PF 50V, CERAMIC CAPACITOR	1
C109		7PF 50V, CERAMIC CAPACITOR	1
C113		12PF 50V, CERAMIC CAPACITOR	1
C107		18PF 50V, CERAMIC CAPACITOR	1
C108,211,218		22PF 50V, CERAMIC CAPACITOR	3
C116		24PF 50V, CERAMIC CAPACITOR	1
C106		24PF 50V, CERAMIC CAPACITOR	1
C105		27PF 50V, CERAMIC CAPACITOR	1

SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY
C602		47PF 50V, CERAMIC CAPACITOR	1
C101,209,219		100PF 50V, CERAMIC CAPACITOR	3
C605		180PF 50V, CERAMIC CAPACITOR	1
C126		220PF 50V, CERAMIC CAPACITOR	1
C230		470PF 50V, CERAMIC CAPACITOR	1
C115,213, 216,309,311, 142,231		0.001μF 50V, CERAMIC CAPACITOR	7
C102,104		0.0047μF 50V, CERAMIC CAPACITOR	2
C110,111, 114,117,118, 122,124,406, 407,502,504-509,515,516, 517,410,411, 412		0.022μF 50V, CERAMIC CAPACITOR	22
C112,123,201, 408,409,501		0.047μF 25V, SEMI CONDUCTOR CAPACITOR	6
R404		68ohm METAL OXIDE FILM, 1W	1
R402		2.2ohm FUSING, 1/2W	1
R316		3.3ohm CARBON FILM, 1/8W P.M	1
R310,315		10ohm CARBON FILM, 1/8W P.M	2
R101		22ohm CARBON FILM, 1/8W P.M	1
R229		82ohm CARBON FILM, 1/8W P.M	1
R122		100ohm CARBON FILM, 1/8W P.M	1
R318,319		150ohm CARBON FILM, 1/8W P.M	2
R111		220ohm CARBON FILM, 1/8W P.M	1
R127		820ohm CARBON FILM, 1/8W P.M	1
R401,230		1.5Kohm CARBON FILM, 1/8W P.M	2
R202,210,217		2.2Kohm CARBON FILM, 1/8W P.M	3
R211,214,216		10Kohm CARBON FILM,, 1/8W P.M	3
R516		470Kohm CARBON FILM,1/8W P.M	1
R105,107		100Kohm CARBON FILM,1/8W P.M	2
R527		120Kohm CARBON FILM,1/8W P.M	1
R520		220Kohm CARBON FILM,1/8W P.M	1 1
R208,209		470Kohm CARBON FILM,1/8W P.M	2
R302		12Kohm CARBON FILM, 1/8W P.M	1
R317		3.3ohm CARBON FILM, 1/8W P.R	1
R228		22ohm CARBON FILM, 1/8W P.R	1
R110		47ohm CARBON FILM, 1/8W P.R	1
R213		68ohm CARBON FILM, 1/8W P.R	1
R121		100ohm CARBON FILM, 1/8W P.R	1
R221		220ohm CARBON FILM, 1/8W P.R	1
R109		330ohm CARBON FILM, 1/8W P.R	1
R128		390ohm CARBON FILM, 1/8W P.R	1

SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY
R103,118, 201,307,311 313,403,528		1Kohm CARBON FILM, 1/8W P.R	8
R406		1.5Kohm CARBON FILM, 1/8W P.R	1
R112		1.8Kohm CARBON FILM, 1/8W P.R	1
R120,405,407		2.2Kohm CARBON FILM, 1/8W P.R	3
R119,123, 126,205,305 306,503-506		3.3Kohm CARBON FILM,1/8W P.R	10
R113		3.9Kohm CARBON FILM,1/8W P.R	1
R203,507		4.7Kohm CARBON FILM,1/8W P.R	2
R117,204,227		6.8Kohm CARBON FILM, 1/8W P.R	3
R308,508, 125,309		10Kohm CARBON FILM, 1/8W P.R	4
R219,224		12Kohm CARBON FILM, 1/8W P.R	2
R225,226, 525,526		22Kohm CARBON FILM, 1/8W P.R	4
R212,218		15Kohm CARBON FILM, 1/8W P.R	2
R206,207		33Kohm CARBON FILM, 1/8W P.R	2
R601,509, 512,521,523, 524,602		47Kohm CARBON FILM, 1/8W P.R	7
R104		68Kohm CARBON FILM, 1/8W P.R	1
R301		82Kohm CARBON FILM, 1/8W P.R	1
R106,114, 115,116,510, 517,522,603		100Kohm CARBON FILM,1/8W P.R	8
R214,223		120Kohm CARBON FILM,1/8W P.R	2
R502		180Kohm CARBON FILM,1/8W P.R	1
R215,222		220Kohm CARBON FILM, 1/8W P.R	2
R108,511		330Kohm CARBON FILM,1/8W P.R	2
R220		1Mohm CARBON FILM, 1/8W P.R	1
R515,519		2.2Mohm CARBON FILM, 1/8W P.R	2
R514,518		3.3Mohm CARBON FILM, 1/8W P.R	2
R529		5.6Kohm CARBON FILM, 1/8W P.R	1
R408		8.2Kohm CARBON FILM, 1/8W P.R	1
(TV PARTS)			
V/R		K121L001COKB, TV TUNING VOLUME	1
SW1		SS43D01G9, TV BAND SWITCH	1
SVR5,7		TT-24R 10KB, SEMI VOLUME	2
SVR6		TT-24R 20KB, SEMI VOLUME	1
R82		10Kohm CARBON FILM, 1/8W P.R	1
R79,81		1Mohm CARBON FILM, 1/8W P.R	2
R80		100Kohm CARBON FILM,1/8W P.R	1
R77		3.9Kohm CARBON FILM,1/16W P.S	1
R78		22Kohm CARBON FILM, 1/16W P.S	1
C83		0.047μF 25V, SEMI-CONDUCTIVE	1

(TV)

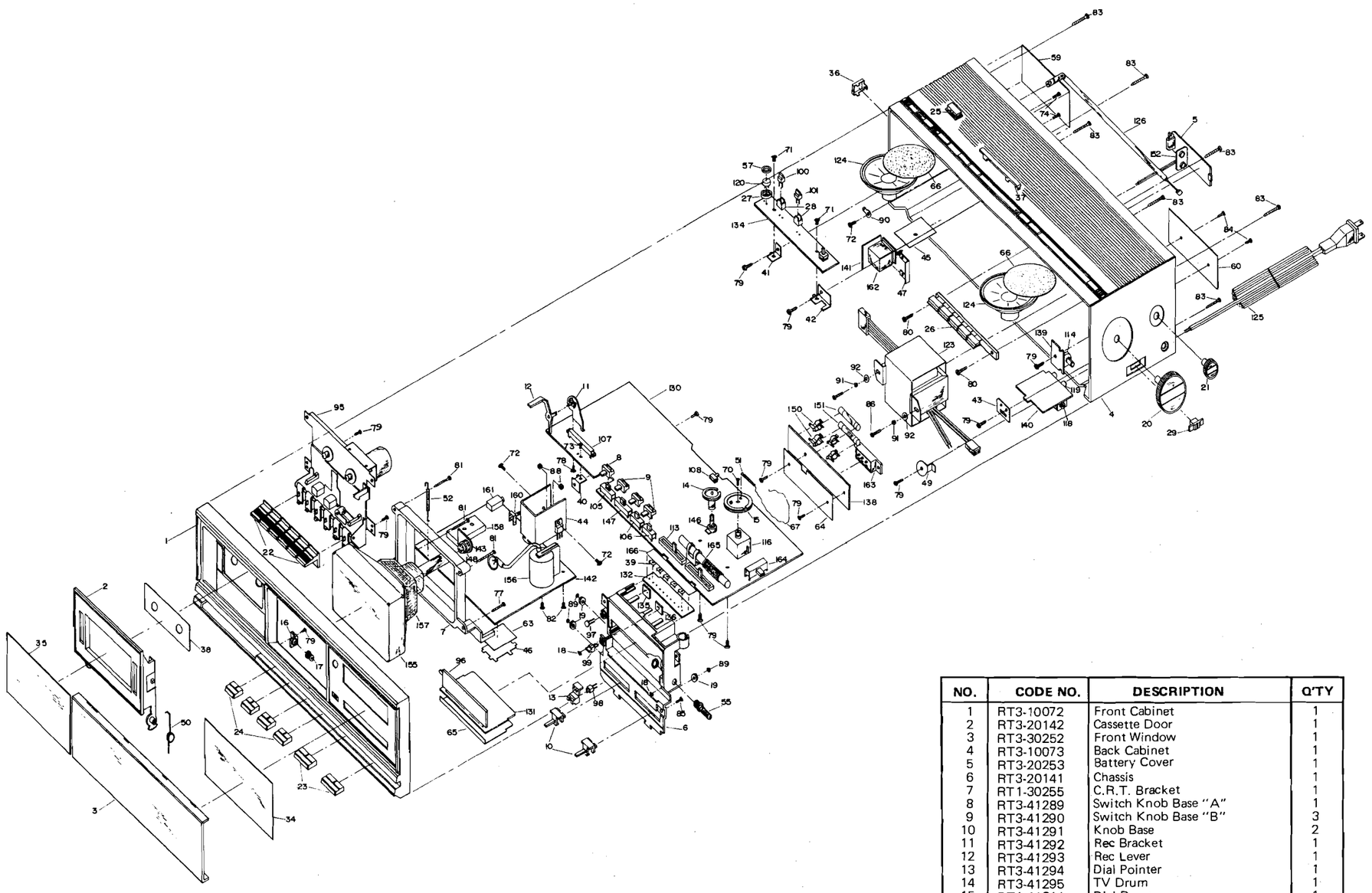
SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY
C.R.T		4ADC4 C.R.T	1
F.B.T		KFS-20998 F.B.T	1
D.Y		KYS-20612 D.Y	1
UV-TUNER		TUMUB3EC-991 UV-TUNER	1
IC1		uPC-1366C IC	1
IC2		uPC-1379C IC	1
IC3		uPC-1382 IC	1
Q1		KTC1923-0 TRANSISTOR	1
Q2,7		KTC1815-Y TRANSISTOR	2
Q3		KTC2229-Y TRANSISTOR	1
Q4		KTC1959-Y TRANSISTOR	1
Q5		KTC2223 TRANSISTOR	1
Q6		KTB834Y or KTB596 TRANSISTOR	1
D1		EQA02-30B (30V, 1/2W) ZENER DIODE	1
D2,5,7		DS4001 SI DIODE	3
D3,4,9,11,13		DS4148 SWITCHING DIODE	5
D6,8		DS4003 SI DIODE	2
D10		EQA02-7B (6.8V, 1/2W) ZENER DIODE	1
D12		1SS168 SWITCHING DIODE	1
D14		1N4001 SI DIODE	1
SAW-FLT.		SAF-38.9MH52P SAW FILTER	1
CF1		TPS-5.5MA CERAMIC FILTER	1
CF2		SFE 5.5BMF CERAMIC FILTER	1
CF3		CDA-5.5MC20 CERAMIC FILTER	1
SVR1		TT-24R 10KB SEMI VOLUME	1
SVR2		TT-24R 5KB SEMI VOLUME	1
SVR3		TT-24R 500B SEMI VOLUME	1
SVR4		TT-24R 5KB SEMI VOLUME	1
VR1		EVU-E2AM20B14 VOLUME	1
VR2		EVU-E2AM20B52 VOLUME	1
VR3		EVU-E2AM20B55 VOLUME	1
T1		00TR RF IFT	1
T2		02TD DET IFT	1
L2		25TC INDUCTOR COIL	1
L1		01TL LINERARITY COIL	1
MONO JACK		HSJ0707-01-020 MONO JACK	1
MATCHING UNIT		KC-406 MATCHING UNIT	1
CRT SOCKET		NPS0051-01-010 CRT SOCKET	1
SPARK GAP		AGB15P202FS-42M	1
R59		1ohm CARBON FILM, 1/8W P.R	1
R46		3.9ohm CARBON FILM, 1/8W P.R	1
R34,35		10ohm CARBON FILM, 1/8W P.R	2
R16		12ohm CARBON FILM, 1/8W P.R	1
R1,9,28,71		47ohm CARBON FILM, 1/8W P.R	4
R27		82ohm CARBON FILM, 1/8W P.R	1
R6,59		100ohm CARBON FILM, 1/8W P.R	2
R5		120ohm CARBON FILM, 1/8W P.R	1
R43		22ohm CARBON FILM, 1/8W P.R	1
R4,17,45,51, 67,68		330ohm CARBON FILM, 1/8W P.R	6
R88		220ohm CARBON FILM, 1/8W P.R	1
R12		470ohm CARBON FILM, 1/8W P.R	1
R29,41		680ohm CARBON FILM, 1/8W P.R	2
R66		820ohm CARBON FILM, 1/8W P.R	1

SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY
R13,38,73		1Kohm CARBON FILM, 1/8W P.R	3
R10		150ohm CARBON FILM, 1/8W P.R	1
R52,56		1.8Kohm CARBON FILM, 1/8W P.R	2
R84		1Kohm CARBON FILM, 1/16W P.R	1
R7,8,53		2.2Kohm CARBON FILM, 1/8W P.R	3
R2		2.7Kohm CARBON FILM, 1/8W P.R	1
R60,61,62, 63,69,70		10Kohm CARBON FILM, 1/8W P.R	6
R11,19,22, 49		15Kohm CARBON FILM, 1/8W P.R	4
R48		18Kohm CARBON FILM, 1/8W P.R	1
R50,58		20Kohm CARBON FILM, 1/8W P.R	2
R54		22Kohm CARBON FILM, 1/8W P.R	1
R20,21		24Kohm CARBON FILM, 1/8W P.R	2
R47		33Kohm CARBON FILM, 1/8W P.R	1
R25		82Kohm CARBON FILM, 1/8W P.R	1
R57		68Kohm CARBON FILM, 1/8W P.R	1
R72		100Kohm CARBON FILM, 1/8W P.R	1
R14		470Kohm CARBON FILM, 1/8W P.R	1
R40,74		4.7Kohm CARBON FILM, 1/8W P.R	1
R39,83		5.6Kohm CARBON FILM, 1/8W P.R	2
R3		12Kohm CARBON FILM, 1/8W P.R	1
R64,65		100ohm CARBON FILM, 1/8W P.S	2 2
R23		150ohm CARBON FILM, 1/8W P.S	1
R18		220ohm CARBON FILM, 1/8W P.S	1
R37		270ohm CARBON FILM, 1/8W P.S	1
R86		75ohm CARBON FILM, 1/8W P.S	1
R24		5.6Kohm CARBON FILM, 1/8W P.S	1
R30		4.7Kohm CARBON FILM, 1/8W P.S	1
R55		12Kohm CARBON FILM, 1/8W P.S	1
R26		330Kohm CARBON FILM, 1/8W P.S	1
R15		1Kohm CARBON FILM, 1/8W P.S	1
R36		130ohm CARBON FILM, 1/2W P.R	1
R31,33		1ohm CARBON FILM, 1/2W P.R	2
R32		10ohm CARBON FILM, 1/2W P.R	1
R44		68ohm CARBON FILM, 1/2W P.R	1
C67		1μF 16V, TANTAL CAPACITOR	1
C56		0.0056μF 50V, STYROL CAPACITOR	1

SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY
C34		56PF 500V, CERAMIC CAPACITOR	1
C35		0.01μF 500V, CERAMIC CAPACITOR	1
C14		18PF 50V, CERAMIC CAPACITOR	1
C44		270PF 50V, CERAMIC CAPACITOR	1
C13,15		0.001μF 50V, CERAMIC CAPACITOR	2
C6,7,10,12, 17,18,20,22, 25,28 39,42, 50,73,79,81		0.01μF 50V, CERAMIC CAPACITOR	16
C11		560PF 50V, CERAMIC CAPACITOR	1
C82		0.0047μF 50V, CERAMIC CAPACITOR	1
C1,2,3,4		0.047μF 50V, CERAMIC CAPACITOR	4
C84,86		0.1μF 50V, CERAMIC CAPACITOR	2
C85		0.018μF 200V, MYLAR CAPACITOR	1
C60,69		0.001μF 100V, MYLAR CAPACITOR	1
C32		0.0015μF 100V, MYLAR CAPACITOR	1
C45		0.0022μF 100V, MYLAR CAPACITOR	1
C57,68		0.0047μF 100V, MYLAR CAPACITOR	2
C78		0.018μF 100V, MYLAR CAPACITOR	1
C70,74		0.01μF 100V, MYLAR CAPACITOR	2
C71		0.022μF 100V, MYLAR CAPACITOR	1
C38		0.056μF 200V, MYLAR CAPACITOR	1
C59,62,63		0.033μF 100V, MYLAR CAPACITOR	3
C55,58		0.047μF 100V, MYLAR CAPACITOR	2
C64		0.068μF 100V, MYLAR CAPACITOR	1
C29,52		0.1μF 100V, MYLAR CAPACITOR	2
C75,76		0.1μF 50V, ELECTROLYTIC CAPACITOR	2
C54		1μF 50V, ELECTROLYTIC CAPACITOR	1
C23,61		2.2μF 50V, ELECTROLYTIC CAPACITOR	2
C49,80		4.7μF 16V, ELECTROLYTIC CAPACITOR	2
C24,43		10μF 16V, ELECTROLYTIC CAPACITOR	2
C77		33μF 16V, ELECTROLYTIC CAPACITOR	1
C30,36,46,53, 72		47μF 16V, ELECTROLYTIC CAPACITOR	5
C5,19,40,65		100μF 16V, ELECTROLYTIC CAPACITOR	4
C26,33		220μF 10V, ELECTROLYTIC CAPACITOR	2
C21,41,66		470μF 16V, ELECTROLYTIC CAPACITOR	3
C48		1000μF 6.3V, ELECTROLYTIC CAPACITOR	1
C8,9		33μF 50V, ELECTROLYTIC CAPACITOR	2
C27		4.7μF 160V, ELECTROLYTIC CAPACITOR	1

SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY
C37		4.7μF 25V (NP,HF), ELECTROLYTIC CAPACITOR	1
C51		470μF 25V, ELECTROLYTIC CAPACITOR	1
C16		100μF 16V, ELECTROLYTIC CAPACITOR	1
R75		2.2Kohm CARBON FILM, 1/8W P.R	1
R90		1Mohm CARBON FILM, 1/8W P.R	1
R94		3.3Mohm CARBON FILM, 1/8W P.R	1
R76		150Kohm CARBON FILM, 1/8W P.R	1
R89		470Kohm CARBON FILM, 1/8W P.R	1
R92		3.3Kohm CARBON FILM, 1/8W P.R	1
R93		4.7Mohm CARBON FILM, 1/8W P.R	1
C87		4.7μF 160V, ELECTROLYTIC CAPACITOR	1

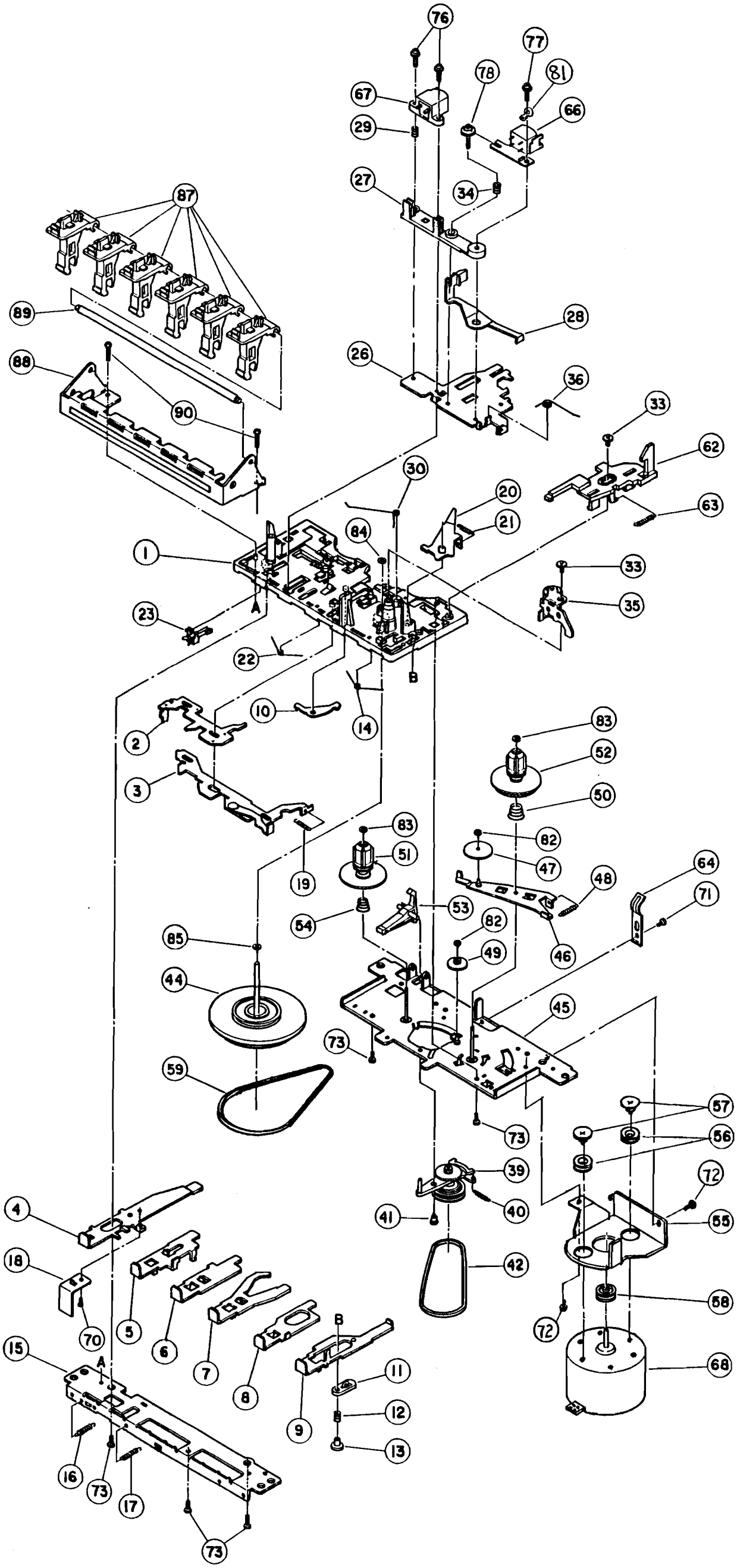
CABINET EXPLODED VIEW



NO.	CODE NO.	DESCRIPTION	Q'TY
1	RT3-10072	Front Cabinet	1
2	RT3-20142	Cassette Door	1
3	RT3-30252	Front Window	1
4	RT3-10073	Back Cabinet	1
5	RT3-20253	Battery Cover	1
6	RT3-20141	Chassis	1
7	RT1-30255	C.R.T. Bracket	1
8	RT3-41289	Switch Knob Base "A"	1
9	RT3-41290	Switch Knob Base "B"	3
10	RT3-41291	Knob Base	2
11	RT3-41292	Rec Bracket	1
12	RT3-41293	Rec Lever	1
13	RT3-41294	Dial Pointer	1
14	RT3-41295	TV Drum	1
15	RT1-41311	Dial Drum	1
16	460041083	Gear Bracket	1
17	460041082	Pinion Gear	1
18	MDMP470579	Dial Pulley	2
19	405430004	Dial Pulley	3
20	RT3-41284	Tuning Knob	1
21	RT3-41283	Tone Knob	1
22	RT3-41282	Cassette Knob	6
23	RT3-41285	Volume Knob	2
24	RT3-41286	Slide Knob	4
25	RT3-41288	Message Knob	1
36	RT3-41287	Clock Knob	1
27		Con, Mic Stud	1
28		LED Stud	2
29		3Band Knob	
34	RT3-41297	Dial Window	1
35	RT3-41296	Cassette Window	1
36	RT341279	Reset Plate	1
37	RT3-41300	Snooze Plate	1
38	RT3-41301	Mirror Plate	1

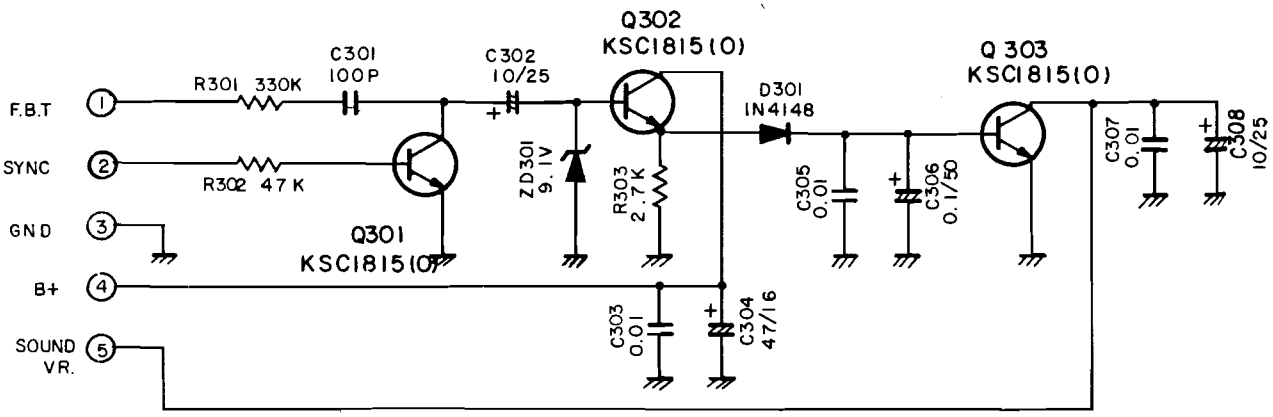
NO.	CODE NO.	DESCRIPTION	Q'TY
39	RT3-41478	Tactile Switch	5
40	RT3-41303	P.C.B. Bracket	1
41	RT3-41304	LED PCB Bracket "A"	1
42	RT3-41305	LED PCB Bracket "B"	1
43	RT3-41440	Jack PCB Holder	1
44	RT1-431325	Heat Sink	1
45		Sheild Plate "A"	1
46		Sheild Plate "B"	1
47		Din Jack Holder	1
49	RT3-41454	AC Cord Stopper	1
50	RT3-41302	Door Spring	1
51	880041044	Dial Spring	1
52	RT1-41336	CRT. GND. Spring	1
55	RT3-41306	Tuning Shaft	1
56	RT3-41308	Mic Cushion	1
59	RT3-41458	Spec Plate	1
60	RT3-41459	Voltage Plate	1
63		Insulator "A"	1
64	RT3-41437	Insulator "B"	1
65	RT3-41439	Sheild Plate	1
66	RT3-41438	Speaker Net	2
67		Dial String	1
70		Machine Screw Flt M2.6x12MsZn	1
71		Machine Screw Flt M3x6MsZn	2
72		Machine Screw Bid M3x8MsZn	3
73		Machine Screw Bid M3x4MsZn	1
74		Machine Screw Flt M2.6x12MsNi	2
77		T1s Bid ϕ3x20MsZn	1
78		T1s Bid ϕ3x8MsZn	1
79		T1s Bid ϕ3x10MsZn	13
80		T1w Bid ϕ3x12MsZn	2
81		T2w Bid ϕ3x25MsZn	3
82		T1s Bid ϕ3x6MsZn	2
83		T1s Pan ϕ3x25MsZn	7
85		Bid ϕ3x12MsZn P Type	1
86		Bid ϕ3x15MsZn P Type	2
88		Nut M3	2
89		Washer Fiber ϕ2.1x5x0.3t	3
90		Lug Terminal	1
91		Washer (Spring) ϕ3.1	2
92		Washer (Plan) ϕ3.1x10x0.5t	2
95		Deck Mechanism TN-21SC-504	1
96		FL Display 5LT-79ZL	1
97		CDS Poto Cell SC-07-1.5S	1
98		LED RED 1x5 SLB 15VR3	1
99		LED GRN 2x5 SLB 25MG3	1
100		LED RED 2x5 SLB 25VR3	1
101		LED ORG 2x5 SLB 25DU3	1
105		Switch 2c 4p SS24 Doig9	1
106		Switch 4c 3p	2
107		Switch 9c 2p	1
108		Switch 2c 2p	1
113		V/R Volume S3018P6 50KB	2
114		V/R Tone K122LOO 50KAx2	1
116		PVC-2LXT-L	1
118		Jack (Headphone)	1
119		EXT. Speaker	2
120		Con. Mic Unit	1
123		Power Transformer	1
124		Speaker	2
125		Ac Cord	1
126		Rod Antenna	1
130		PC Board Main	1
131		PC Board Clock	1
132		PC Board C-Cont	1
134		PC Board Switch	1
135		PC Board CDS	1
136		PC Board LED (Stereo)	1
138		PC Board Power	1
140		PC Board Tone	1
141		PC Board Diw	1
142		PC Board TV	1
143		PC Board CRT Socket	1
146		V/R TV Tuning	1
147		Switch TV Band	1
148		CRT Socket	1
150		Fuse Holder Clip	2
151		Fuse	2
152		Battery Snap Ass'y	
155		CRT C51284	1
156		FBT KFS-20998	1
157		DY KYS-20612	1
158		Tuner	1
160		Volume	3
161		Mono Jack	1
162		Din Jack	1
163		Voltage Switch	1
164		3Band Switch	1
165		AM Ant. Coil Ass'y	1
166		Scoth Tape	1

DECK EXPLODED VIEW

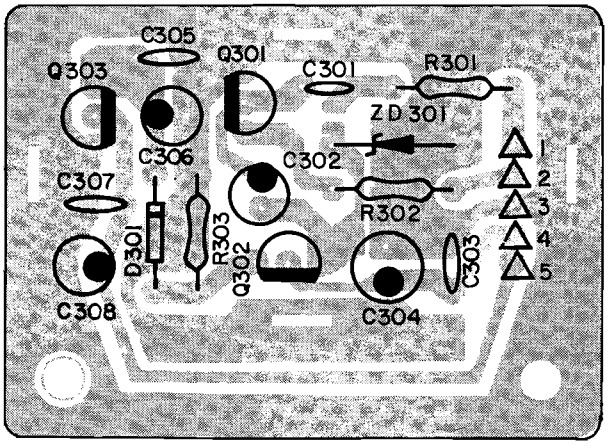


NO.	CODE NO.	DESCRIPTION	Q'TY
1	1821 01 60	MAIN BASE ASS'Y	1
2	1821 01 05	SWITCH PLATE	1
3	1821 01 501	PUSH BUTTON ACTUATOR ASS'Y	1
4	1821 01 28A	REC BUTTON LEVER	1
5	1821 01 29	PLAY BUTTON LEVER	1
6	1821 01 30	RWD BUTTON LEVER	1
7	1821 01 31	FF BUTTON LEVER	1
8	1821 01 32	STOP BUTTON LEVER	1
9	1821 01 503	PAUSE BUTTON LEVER ASS'Y	1
10	1821 01 68	RWD LEVER	1
11	1821 01 15	PAUSE LEVER	1
12	1821 01 16	PAUSE LEVER SPRING	1
13	1821 01 34	PAUSE STOPPER	1
14	1821 01 23	BUTTON LEVER SPRING (C)	1
15	1821 01 19	SUB CHASSIS	1
16	1821 01 07	BUTTON LEVER SPRING (A)	1
17	1821 01 50	PLAY BUTTON LEVER SP (S)	1
18	1510 02 02	REC SPRING PLATE	1
19	1821 01 22	ACTUATOR SPRING	1
20	1821 01 60	AUTO LEVER	1
21	1821 01 21	AUTO LEVER SPRING	1
22	1821 01 49	BUTTON LEVER SPRING (E)	1
23	MSW-1541	LEAF SWITCH	1
24			
25			
26	1829 03 04	HEAD PANEL	1
27	1829 03 02	HEAD BASE	1
28	1829 03 301	SENSING PLATE ASS'Y	1
29	1821 03 08	E.H. SPRING	1
30	1821 03 12	HEAD PANEL SPRING	1
31			
32			
33	1821 13 05	P.M.E SCREW	2
34	1821 03 07	SPRING	1
35	1821 04 301	PINCH ROLLER ASS'Y	1
36	1821 04 02	PINCH ROLLER SPRING	1
37			
38			
39	1821 07 301	RF PULLEY ARM ASS'Y	1
40	1821 07 04	RF PULLEY ARM SPRING	1
41	1867 04 13	RF ARM COLLER SCREW	1
42	1821 07 05	RF BELT	1
43			
44	1821 09 301	FLYWHEEL ASS'Y	1
45	1829 10 501A	REEL BASE ASS'Y	1
46	1821 10 503	TAKE-UP GEAR PLATE ASS'Y	1
47	1867 03 10	TAKE-UP ROLLER GEAR	1
48	1821 10 08	T.G. PLATE SPRING	1
49	1867 03 09	FF GEAR	1
50	1821 10 12	BACK TENSION SPRING	1
51	1821 10 301	SUPPLY REEL ASS'Y	1
52	1829 10 302	TAKE-UP REEL ASS'Y	1
53	1800 02 10	RECORD SAFETY LEVER	1
54	1800 05 17	BACK TENSION SPRING	1
55	1821 12 10	MOTOR BRACKET	1
56	1820 13 06	MOTOR RUBBER	2
57	1821 12 02	MOTOR COLLER SCREW	2
58	1821 12 03	MOTOR PULLEY	1
59	1720 09 05	MAIN BELT	1
60			
61			
62	1821 13 04	EJECT SLIDE LEVER	1
63	1821 13 02	EJECT SLIDE LEVER SPRING	1
64	1829 10 01	PACK SPRING	1
65			
66		R.P. HEAD	1
67		E. HEAD	1
68		MOTOR	1
69			
70	9076-00-00	TAMS SCREW M2x3	1
71	9179-00-00	C TAPPING SCREW M2x3	1
72	9180-00-00	C TAPPING SCREW M2x4	2
73	9716-00-00	P TAPPING BIND SCREW M2x4	5
74			
75			
76	9821-00-00	⊕ ⊖ CAP SCREW M2x8	2
77	9820-00-00	⊕ ⊖ CAP SCREW M2x7	1
78	9922-00-00	AZIMUTH SCREW	1
79			
80			
81	9480-00-00	LAG	1
82	9421-00-00	P. WASHER CUT 1.2x3x0.25	2
83	9888-00-00	P WASHER CUT 1.2x3x0.4	2
84	9875-00-00	P WASHER CUT 1.55x3.8x0.5	1
85	9937-00-00	P WASHER CUT 2.05x4x0.4	1
86			
87	1821 31 07	OPERATION LEVER	6
88	1821 31 06	B FLAME(S)	1
89	1829 31 03	BUTTON LEVER SHAFT	1
90	9982-00-00	SCREW (FOR CAMERA) M2x7	2
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			

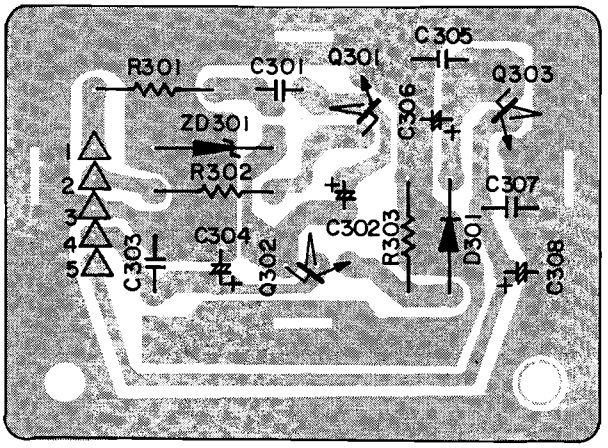
MUTE CIRCUIT



P. C. B. TOP VIEW



P. C. B. BOTTOM VIEW



* REFERENCE *

○ **HOW TO CONNECT (At above circuit)**

Number 1 – Soldered to FBT (F2)
Number 2 – Soldered to IC 2 pin 15 (Sync Signal)
Number 3 – Soldered to Ground
Number 4 – Soldered to Q6 Collector (B + Line)
Number 5 – Soldered to IC3 Pin 8 (Sound)

○ **MAJOR ELECTRICAL PARTS LIST**

Transistor: Q301, Q302, Q303 ..... KSC1815 (0)
Zener Diode: ZD301 ..... 9.1V
Silicon Diode: D301 ..... 1N 4148

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